

Distribution of Sulphur Between Metal and Slag During Melting Down Period in Conversion of Low-Manganese Cast Iron

77683 SOV/148-60-1-6/34

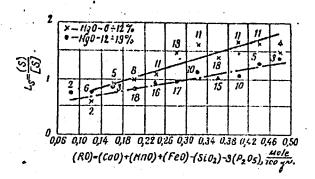


Fig. 4. The relationship of the coefficient of distribution of sulfur between the metal and the slag and the concentration of free basic oxides when MgO content in slag varies.

Card .7/10

The previous work of P. V. Umrikhin, N. I. Kokarev, A. N. Morozov, V. F. Agapov, D. K. Pugachev, I. I. Bornatskiy, L. A. Shvartsman,

Distribution of Sulphur Between Metal and Slag During Melting Down Period in Conversion of Low-Manganese Cast Iron 77683 SOV/148-60-1-6/34

I. A. Tomilin, V. I. Karmazin, I. S. Kulirov,

A. M. Danilov is referred to. A. N. Morozov, V. F. Agapov and D. K. Pugachev offered the following formula for connecting the coefficient of distribution of sulphur (between the metal and the slag) with the concentration of free basic oxides (FeO) during processing of cast iron with manganese content over 1.5%.

$$\begin{split} L_{S} &= \frac{(S)}{|S|} = [0.5 + 2.25 \, (\text{FeO})'] \left[ \frac{2.5 \, (\Sigma \, \text{MnO})}{(\text{FeO})'} + 1 \right], \\ (\text{FeO})' &= (\text{CaO}) + (\text{MnO}) + (\text{MgO}) + (\Sigma \, \text{FeO}) - 2 \, (\text{SiO}_2) - \\ &- 3 \, (\text{P}_2\text{O}_6) - (\text{Al}_2\text{O}_3) \, \, \text{Mole} \, / \text{100 gr. olag.} \end{split}$$

Card 8/10

The authors arrived at the following conclusions: (1) In the conversion of low-manganese cast iron in the open hearth furnaces, some high content silica slags are formed during the melting down

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period. One of the conditions of successful desulfurization of metal is the decrease of silica content
in the slag. (2) The desulfurizing capacity of
slag (of melting down period, during conversion of
low-manganese cast iron in large capacity open
hearth furnaces) is increasing with the increase
of ferrous oxide in the slag. (3) The transition
of sulphur from metal into slag is evidently due
to the redistribution of iron sulfide between the
metal and the slag. (4) In the acid slags of
melting down period, which contain over 33.5% of
SiO<sub>2</sub>, the coefficient of sulfur distribution does
not depend on the content of any other components
of slag. (5) The change in content of manganous
oxide within 2.5-7.5% limits has no noticeable
effect on the coefficient of sulfur distribution.
(6) The increase of manganese III oxide content
in the slag results in the decrease of coefficient
of sulfur distribution. There are 5 figures; 1

Card 9/10

### CIA-RDP86-00513R001239930005-9 "APPROVED FOR RELEASE: 06/15/2000

Distribution of Sulphur Between Metal and Slag During Melting Down Period in Conversion of Low-Manganese Cast Iron

77683 SOV/148-60-1-6/34

ASSOCIATION:

table; and ll Soviet references.
Magnitogorsk Mining-Metallurgical Institute
(Magnotogorskiy gorno-metallurgicheskiy institut)

SUBMITTED:

August 8, 1958

Card 10/10

PERCHATKIN, P.N. Cand Tech Sci — (diss) "Desulfurization of Metal in the Martens Furnaces of the Magnitogorsk Metallurgical Combine,"

Magnitogorsk, 1960, 24 pp, 120 copies (Magnitogorsk Mining and Metallurgical Institute im G. I. Nosov) (KL, 47/60, 103)

IGNATINKO, Dmitriy Grigor'yevich; STAROSEL'SKIY, Anatoliy Lezerevich;

PREGRANIK, Vladimir Bérisovich; BYSTROV. B.M., red.; GOLYATKINA,

A.G., red.izd-ve; KARASEV, A.I., tekhn.red.

[Machinist-operator; KARASEV, A.I., tekhn.red.]

[Machinist-operator; KARASEV, A.I., tekhn.red.]

[Machinist-operator; KARASEV, A.I., tekhn.red.]

manual for the technical instruction of workers.] Mashinist-operator postov upravlenilis prokatnogo stama; uchebnoe posobie dlia proizvodstvenno-tekhnicheskogo obuchenila rebochikh. Moskve, Gos.neuchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1957. 246 p.

(Rolling mills)

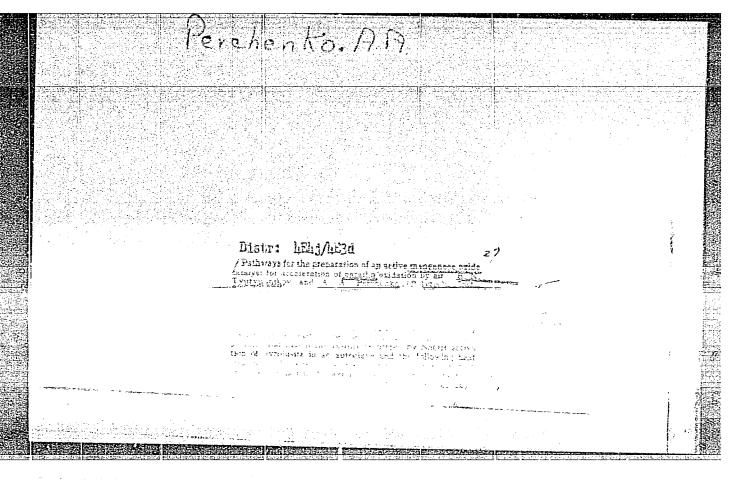
### "APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001239930005-9

PHRCHATKIN, Ya.M. (Taldy-Kurgan)

Improvement and simplification of records in phermacies operating on a commercial basis. Apt.delo 6 no.3:56 My-Je '57. (MIRA 11:1) (PHARMACY--ACCOUNTING)

# Residual acids produced in the oxidation of paraffin in presence of potassium permanganate and manganese dioxide. Masl.-shir. prom. 24 no.9:24-28 '58. (MIRA 11:10) 1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov. (Paraffins) (Acids, Fatty)



s/065/60/000/004/004/017 E071/E435

AUTHORS:

Tyutyunnikov, B.N. and Perchenko, A.A.

TITLE :

Manganese Pyrolusite as a Catalyst for the Oxidation C?

Paraffin

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, No. 4,

pp. 14-19

For the oxidation of paraffin in the production of synthetic fatty acids potassium permanganate is used as an oxidizing catalyst. As this catalyst is expensive, an investigation of its action was carried out in order to find a cheaper but not less The experimental procedure is described in some It was found that when potassium permanganate is used for active catalyst. speeding up the reaction of oxidation of paraffin by air, initially a heterogeneous catalysis of the process by a mixture of higher oxides of manganese and potassium oxide takes place. Whereupon, the induction period in respect of acids decreases due to the action of products of oxidation (peroxides) formed during the heating of paraffin with the catalyst in the presence of air. On dissolution of manganese oxides with the formation of potassium-manganese soaps

Card 1/2

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IL'INA, A.I.; PERCHENKO, A.A.; TEPESHCHENKO, le.Ye.

Effect of the fractional composition of paraffin on the yield of alcohols separated from secondary unsaponifiables, Exim. i tekh. topl. 1 masel 9 no.7:39-44 J1 '64.

(MIRA 17:12)

1. Vsesoyuznyy nauchno-icaladowsteliskiy i proyektnyy institut sinteticheskikh zhirozameniteley.

\$/081/61/000/019/056/085 B117/B110

AUTHORS:

Tyutyunnikov, B. N., Perchenko, A. A.

TITLE:

The problem of acceleration of paraffin oxidation in the

presence of industrial manganese accelerators

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 19, 1961, 321, abstract 19L6 (Sb. nauchn. rabot. In-t Fiz.-organ. khimii AN BSSR.

no. 8, 1960, 148 - 154)

TEXT: Mn-K compounds formed during paraffin oxidation with atmospheric O2 in the presence of active MnO2 and K2CO3 were found to have an inhibitory and catalytic effect on the oxidation process. During paraffin oxidation in the presence of  $MnO_2$  -  $K_2CO_3$  and  $MnO_2$  - K-stearate mixtures (ratio of Mn to K = 1:1), i.e., during the first 2 - 2.5 hr after induction the Mn oxides are entirely converted into Mn compounds soluble in the oxidation product. The dissolution of Mn oxides is accelerated by potash soaps. During the induction period MnO2 initiates the formation of hydrocarbon radicals by shortening the period. During the period Card 1/2

S/081/6:/000/019/056/085
The problem of acceleration of... B1:7/Bi10

after induction Mn-K complexes obviously play the main role in the acceleration of the oxidation process. The K ion functions as a stabilizer in such a complex. [Abstracter's note: Complete translation.]

### PERCHENKO, A.A.

Accelerating the initial stage of paraffin oxidation by potessium permanganate and active manganese dioxide. Trudy NIISZHIMSa no.3: 49-55 '62.

Rate of the accumulation of acids and other oxygen-containing compounds during paraffin oxidation by air in the presence of potassium permanganate and manganese dioxide. 56-59

Effect of potassium salts on the activity of the manganese catalyst. 59-61 (MIRA 16:12)

PERCHENKO, A.A., kand. tekhn. nauk; PEREL!, Ya.I., inzh.; MARCHENKO, M.A., inzh.; GORYACHEVA, G.A., inzh.

Use of manganese-potassium soaps from synthetic fatty acids as a catalyst for the oxidation of paraffin. Masl.-zhir. prom. 29 no.6:17-21 Je '63. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut sinteticheskikh zhirozameniteley. (Paraffins) (Catalysts)

PERCHENCO, A.A., kand. tekhn. mauk; MARCHENKO, M.A., inzh.;

UDOVKNKO, S.A., inzh.; SHAKHROVA, W.P., inzh.

Thermal processing of residual acids after preliminary saponification. Masl.-zhir. prom. 29 no.3:23-25 Mr '63.

(MIRA 16:4)

1. VNIISIMZh.

(Acids, Fatty)

PERCHENKO, A.A., kand.tekhn.nauk; GORYACHEVA, G.A., inzh.; MARCHENKO, M.A., inzh.

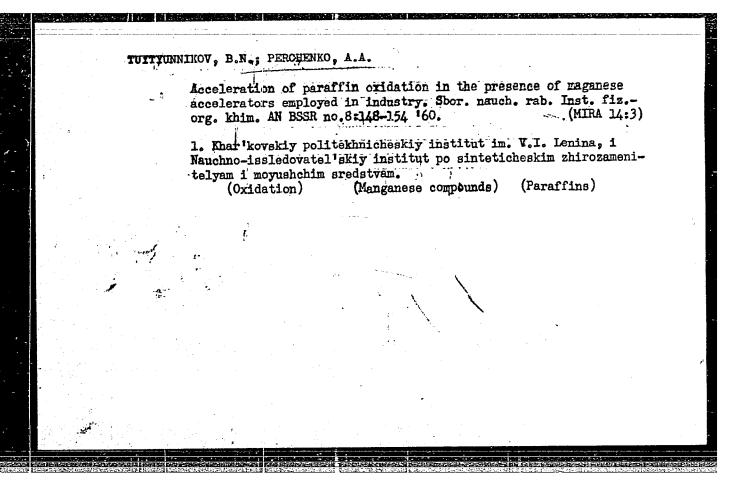
Oxidation of paraffin wax in a pilot plant in the presence of manganese-potassium soaps. Masl.-zhir.prom. 28 no.2:34-37 F '62. (MIRA 15:5)

1. Nauchno-issledovatel'skiy institut sinteticheskikh zhirozameniteley i moyushchikh sredstv.

(Paraffin wax) (Oxidation)

AMERIK, B.K.; NIKOLAYEVA, V.G.; SVETOZAROVA, O.I.; KHACHATUROVA, Z.N. NEYMAN, L.M.; ZHDANOVA, V.V.; DROZDOVA, Ye.I.; LEVASHOVA, E.P. PERCHENKO, A.A.: GALEYEVA, K.S.

Obtaining and testing a test sample of gas-turbine fuel derived from the contact coking of a sweet cracking residue. Trudy GrozNII no. 15:105-110 163. (MIRA 17:5)

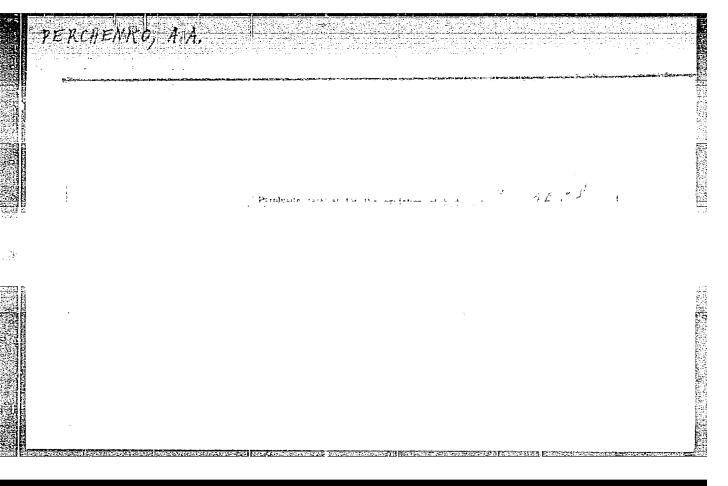


PERCHENKO, A.A., inzh.

Accelerating the oxidation of a paraffin in the presence of mangenese and potassium salts. Masl.-zhir. prom. 27 no. 2:20-21 '61. (MIRA 14:2)

1. Nauchno-issledovatel'skiy institut sinteticheskikh zhirozamenitoloy i moyushchikh sredstv.

(Paraffirs) (Oxidation)



PERCHENCO, A.A., doktor tekhn. nauk, prof.; PERCHENKO, A.A., inzh.

Methods of preparing active ranganese catalysts for the acceleration of the oxidation of paraffin by air, Masl.-zhir, prom. 23 no.12:24-26 '57. (MIRA 11:2)

1. Khar'kovskiy politekhnicheskiy institut (for Tyutyunnikov).

2. Shebekinskiy kombinat sinteticheskikh zhirovykh kislot (SZhK) i shirovykh kislot (ZhK) (for Perchenko).

(Manganese) (Paraffins)

# FERCHENKO, A.A., inzh. Effect of the concentration of the catalyst on the paraffin oxidation rate and the quality of acids obtained. Maal.-zhir. prom. 25 no.2:22-24 '59. (MIRA 12:2) 1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhirov. (Paraffins) (Catalysts) (Oxidation)

NIKOLAYEVA, V.G.; DUKHNINA, A.Ya.; KOROBOV, B.F.; MASLOVA, O.I.; LEVINSON, G.I.; PERCHENKO, A.A.; Prinimal uchastiye SHCHEKOL'TSOVA, M.A., inzh.

Production of gas turbine fuels from coking distillates.

Khim. i tekh.topl.i masel 7 no.3:20-22 Mr '62. (MIRA 15:2)

1. Vsesoyuznyy nauchno-issledovatel skiy institut po pererabotke nefti i gaza i polucheniyu iskusstvennogo zhidkogo popliva.

(Petroleum as fuel)

More on the problem of synthesis of catalysts for oxidation of paraffin wax by air. Masl.-zhir.prom. 28 no.7:25-27
Jl '62.

1. Nauchno-issledovatel'skiy institut sinteticheskikh zhirozameniteley i moyushchikh sredstv.

(Paraffin wax) (Oxidation) (Catalysts)

# PERCHENKO. A.A., inzh. Active accelerators of the oxidation of paraffin to fatty acids in the presence of manganese and potassium fatty acid salts. Hasl.-zhir.prom. 26 no.5:26-31 My '60. (MIRA 13:12)

l. Nauchno-issledovatel'skiy institut sinteticheskikh zhirozameniteley i moyushehikh sredstv.

(Paraffins) (Acids, Fatty) (Oxidation)

TYUTYUNNIKOV, B.N., doktor tekhn.nauk; PERCHENKO, A.A., inzh.

Effect of alkali as a constituent of the catalyst on the rate of oxidation of paraffins. Masl.-zhir.prom. 26 no.3:23-26 Hr 160. (MIRA 13:6)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina (for Tyutyunnikov). 2. NIISZHiMS (for Perchenko). (Oxidation)

## PERCHENKO, A.A., inch.

Effect of the alkali contained in a catalyst on the rate of oxidation of paraffin by atmospheric oxygen. Masl.zhir.prom. 25 no.12:12-15 '59. (MIRA 13:4)

1. Nauchno-issledovatel'skiy institut sinteticheskikh zhirov i masel.

(Paraffins) (Oxidation)

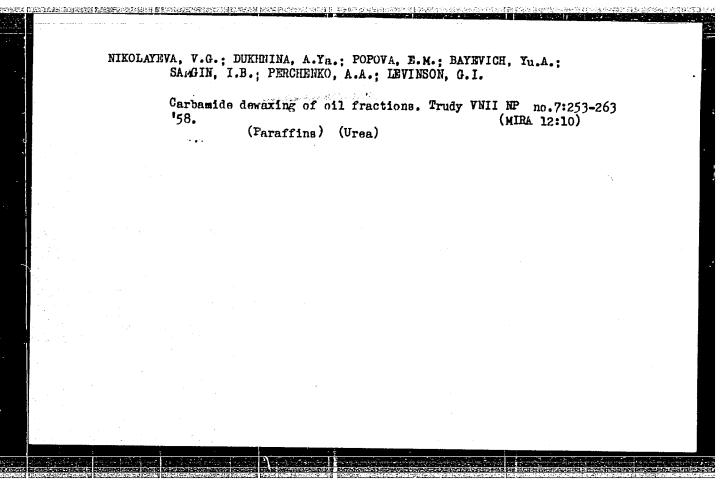
PERCHENKO, A.A., Cand Tech Sci - - (diss) "Study of mangenese containing caletysts for the air-exication of paraffin and ways for their preparation," Shchebekino, 1960, 17 pp (Sci-Mes Institute of Synthetic Fat-substitutes and Wetting Agents (NII SZHIMS)) (KL, 34-60, 122)

PERCHENKO, A.A., kand.tekhn.nauk; UDOVENKO, S.A., inzh.; MARCHENKO, M.A., inzh.; SHAKHROVA, N.P., inzh.

Thermal refining of synthetic fatty acids. Masl.-zhir.prom. 29 no.9:16-18 S '63. (MIRA 16:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektnyy institut sinteticheskich zhirozameniteley.

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TYUTYUNNIKOV, B.N., doktor tekhnicheskikh nauk, professor;

PERCHENKO, A.A., inshener.

Reflect of permanganate in accelerating the oxidation of paraffin with oxygen of the air. Masl.-zhir. prom. 22 no.7: 20-23 '56. (MLRA 9:12)

1. Khar'kovskiy politekhnicheskiy institut (for Tyutyunnikov) 2. Shebekinskiy kombinat Sinteticheskikh zhirnykh kislot i Zhirovogo syr'ya (for Perchenko). (Paraffins) (Potassium permanganate)

KKKK KALASHNIK, I. A., PEREDERA, B. Yg., BOZSHKOV, V. I. and DOROGAYA, Z. I.

"Conserved blood of animals in the biogen stimulator during hear hog
fattering."

Veterinariya Vol. 37, No. 3, 1960, p. 70

Pereders - Cand Vet. Sci.

Wheikor Vet . Inst.

PEREDERA, B. Ya., RUSINOV, A. F. and KALASHNIK, I. A.

"Some notes to the A. A. Agayava's article 'Blood transfusion during the treatment of animals infected with the ileriasis.'"

Veterinariya, vol. 37, No. 4, 1960, p. 54

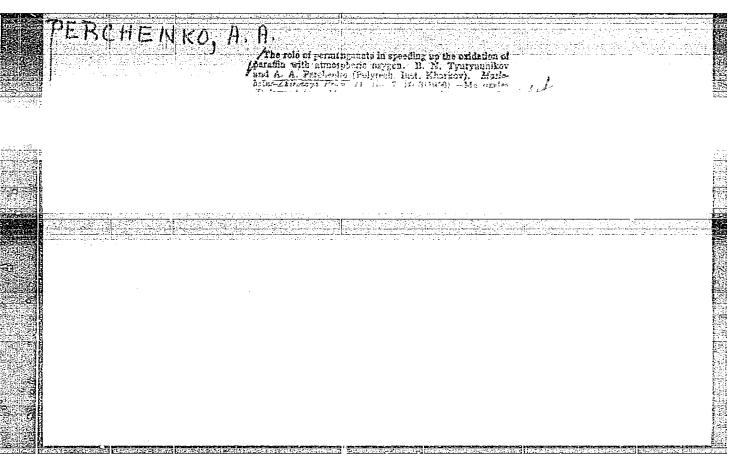
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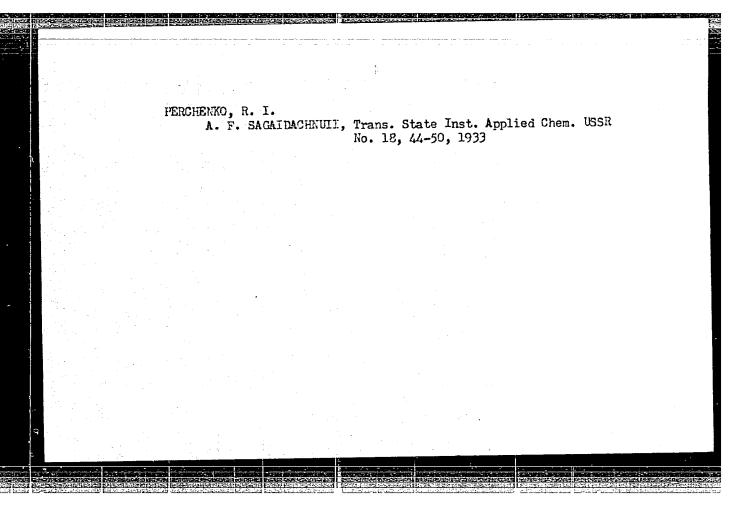
by air. Masl,-zhir. prom. 23 ne.2:22-24 '57. (MIRA 10:4)  1. Vseseyusnyy nauchne-issledovatel'skiy institut shirev. (Manganses oxides) (Paraffins) (Oxidation)	PERCHENK	O. A.A., inzhener. Preparing active mangenese	oxides for acce	lerating paraffin exidati 7. (MIRA 10:4)	8B
		1. Vseseyusnyy nauchne-issl	.edovatel'skiy i	astitut zhirev.	

NAUMETS, Nikolay Ivanovich, ispolnyayushchiy obyazamnosti prof.
kand. tekhn. nauk; ZHIRKOVICH, Sergey Vladimirovich,
ispolnyayushchiy obyazamnosti prof. kand. tekhn. nauk;
ABAYEV, I.I., inzh.; PERCHENKO, A.G., st. pepod.;
SHABANOV, A.D., dots., kand. tekhn. nauk, retsenzent;
YUSTINSKIY, E.A., inzh., retsenzent; ANTONOV, V.P.,
tekhn. red.

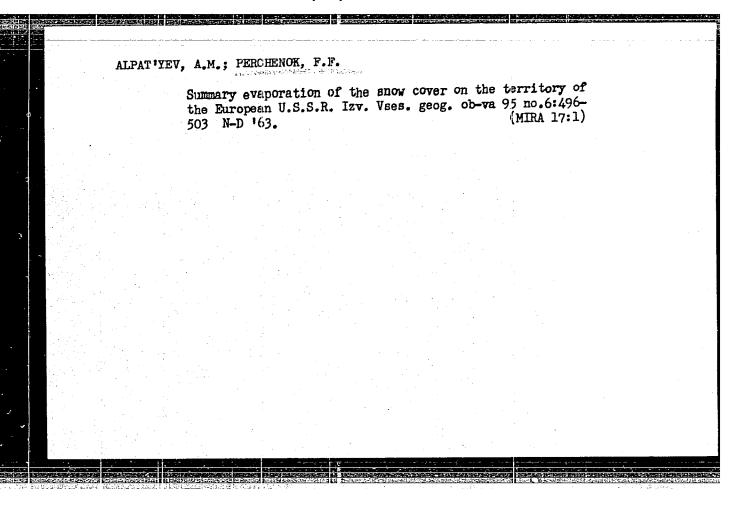
[Hoisting machinery used in building] Gruzopod memnye stroitel'nye mashiny. 2-ia chast' posobiia po kursu stroitel'nykh mashin. Kuibyshev, Kuibyshevskii inzhenerno-stroite. in-t, 1962. 416 p. (MIRA 17:2)

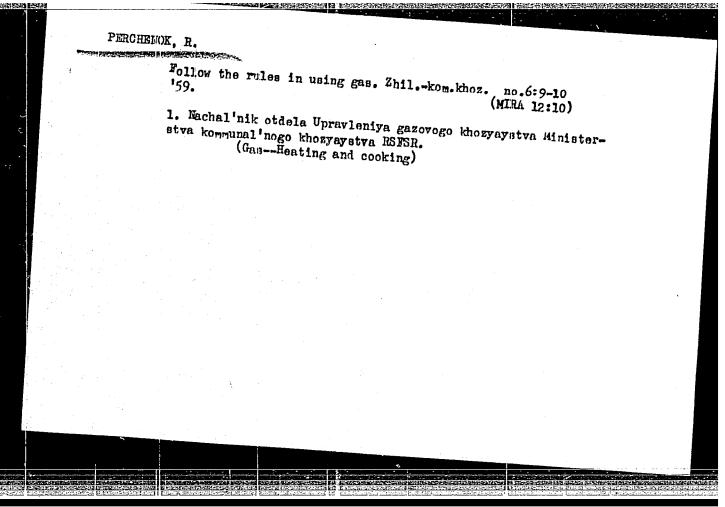
# PEREDERIYEV, V.A. Similarities and dissimilarities of the Eikopol' and the Shiatura manganese deposits. Izv.vys.ucheb.zav.; geol.i razv. 2 no.8:116-122 Åg '59. (MIRA 13:4) 1. Dnepropetrovskiy gornyy insitut. (Chiatura region (Georgia)---Manganese ores) (Nikopol' region (Ukraine)---Manganese ores)

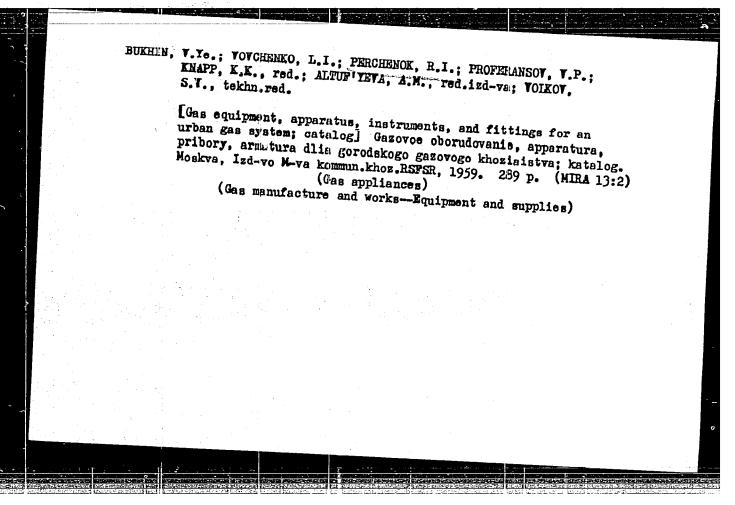


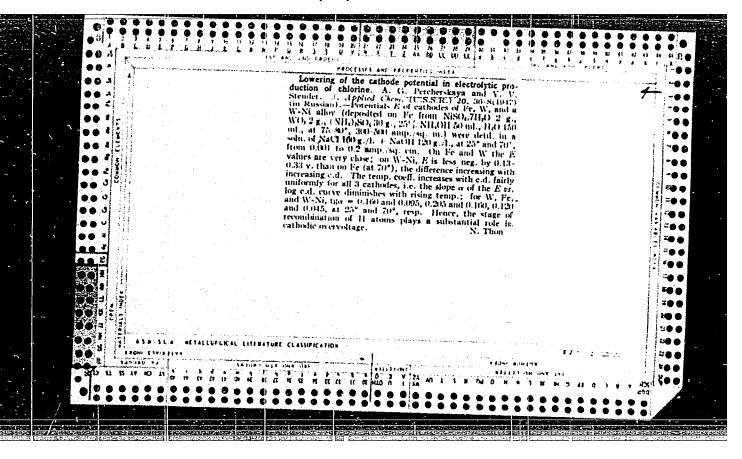


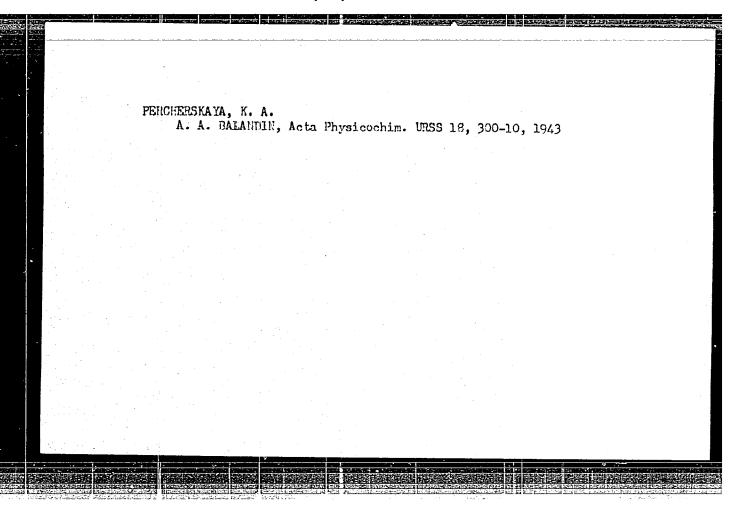
RM/JW EWT(m)/EWP(j) L 37211-66 SOURCE CODE: UR/0062/65/000/004/0737/0738 ACC NR: AP6014410 AUTHOR: Nametkin, N. S.; Grushevenko, I. A.; Perchenko, V. N. ORG: Institute of Petrochemical Synthesis im. A. V. Topchiyev Academy of Sciences SSSR (Institut neftekhimicheskogo sinteza Akademii nauk SSSR) TITLE: Reaction of ethylenimine with allylsilanes SOURCE: AN SSSR. Izvestiya. Seriya khimicheskaya, no. 4, 1966, 737-738 TOPIC TAGS: silane, organic nitrogen compound, chemical reaction ABSTRACT: The formation of an addition product of triethylallylsilane and ethylenimine was achieved in 35% yield using ethylenimine amide as catalyst. Addition was at the beta-carbon of the allylsilane. The presence of the phenyl radical at the Si atom of the silane, leads to breakdown of the Si-C bond. Thus dimethylphenylallylsilane formed no addition product with ethylenimine, but gave dimethylphenyl-N-ethyleniminosilane and propylene. Orig. art. has: 2 equations. SUBM DATE: 07Aug65/ ORIG REF: 002 SUB CODE: 07/ UDC: 542.91/547.233/546.287 Card 1/1 MLF











ACC NR: AN7006465

SCURCE CODE: UR/9004/67/000/027/0003/0003

AUTHOR: Perchik, A. (Candidate of economic sciences)

ORG: none

TITLE: Deep drilling projects

SOURCE: Kazakhstanskaya pravda, no. 27, 01 Feb 67, p. 3, col. 1-2

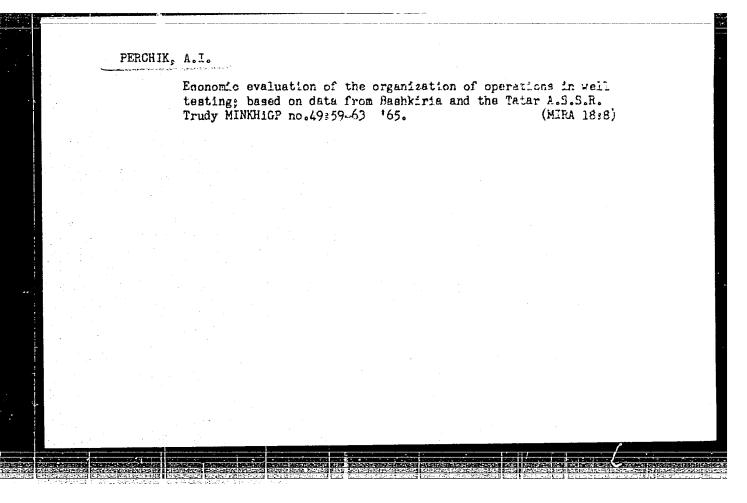
TOPTC TAGS: deep drilling, borehole, well drilling, earth crust, upper mantle, superdeep drilling well drilling machiners

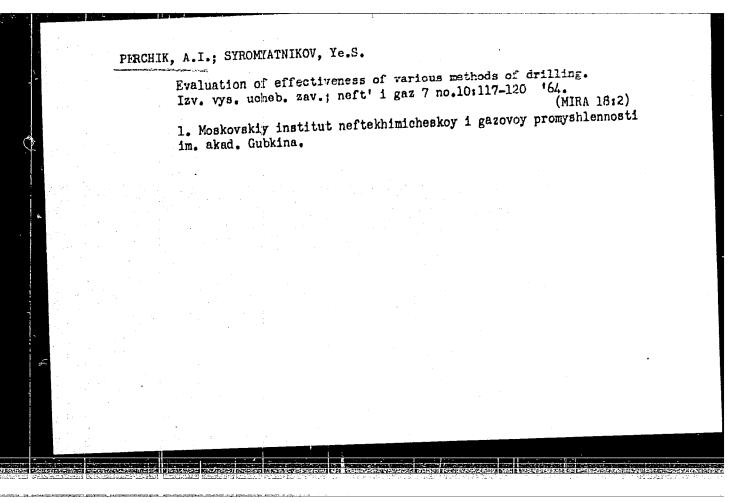
ABSTRACT: Past, present, and future Soviet deep drilling projects are discussed. The first superdeep well (SG-1) was sunk in 1961 near Aral-Sor in the Caspian depression. The Uralmash-ZD drilling rig was successfully used in this project, even though at depths exceeding 5000 m the weight of steel piping reached 250 tons. This borehole has already reached a depth of 6000 m; it is planned that eventually it will reach 7000 m. In 1965 a second 7-km deep well was started on the southeast tip of the Apsheron Peninsula on Shakhovaya spit. A unique 25-story tall drilling rig, complete with workshops and laboratories, was constructed for this project. The ASP-5 installation automates the drilling operations. Three U8-7 pumps with a 3000-kw drive, capable of developing pressures of 220 atm, flush the

Card 1 /2

UDC: none

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well. drills used a this s an ave and ce depths	This project tests new dis, high-strength piping, ar at temperatures up to 100-second project the interval erage rate of 500 m per money mented at a depth of 5800	amond and hydromonitor drill ad chemical reagents for drill 150°C and pressures up to 500 between 3300 and 5800 m was th. A column of casing pipes m. Plans for superdeep wells e Kola Peninsula, Kazakhstan,	ing fluids atm. In drilled at was lowered reaching and
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Card 2/2			7.7

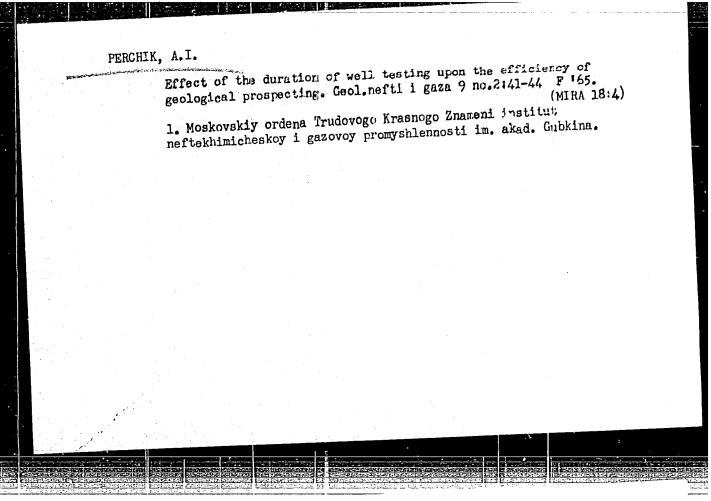


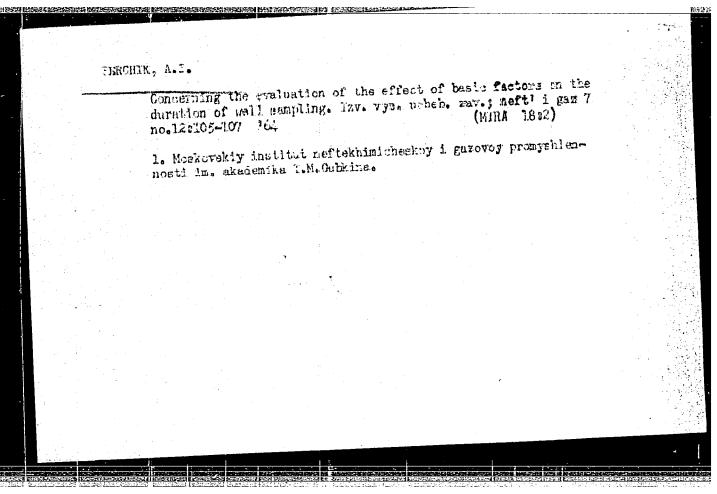


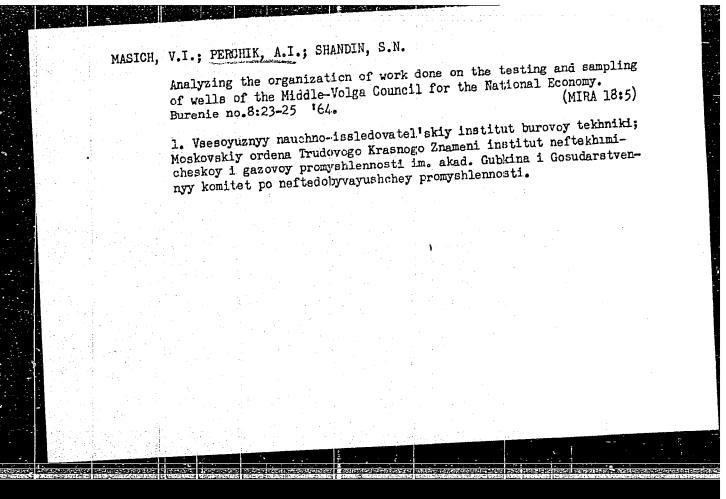
Taking samples from wells using testers in the process of drilling.

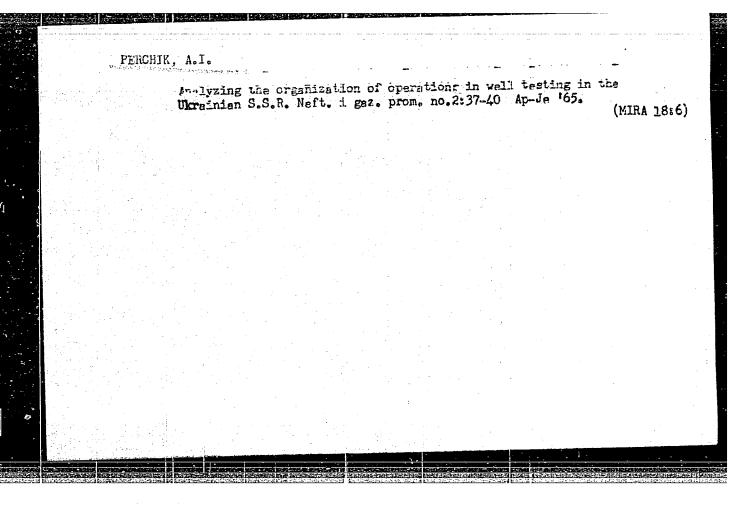
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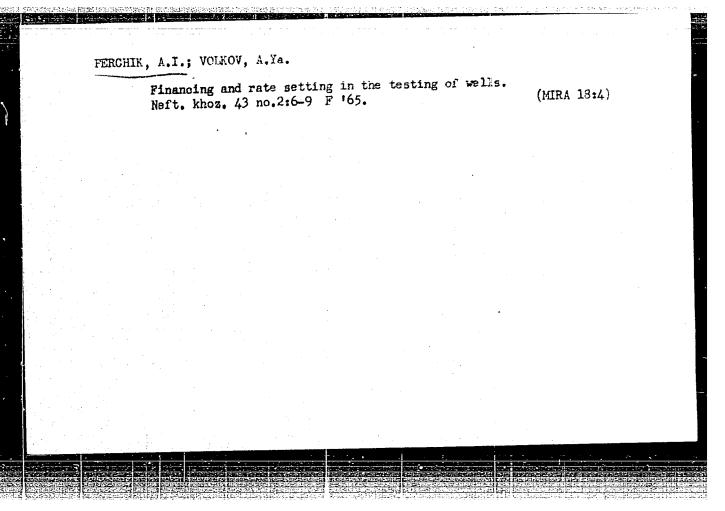
1. Moskovskiy ordena Trudovogo Krasnogo Znameni institut
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i trest "Stavropol'burneft".

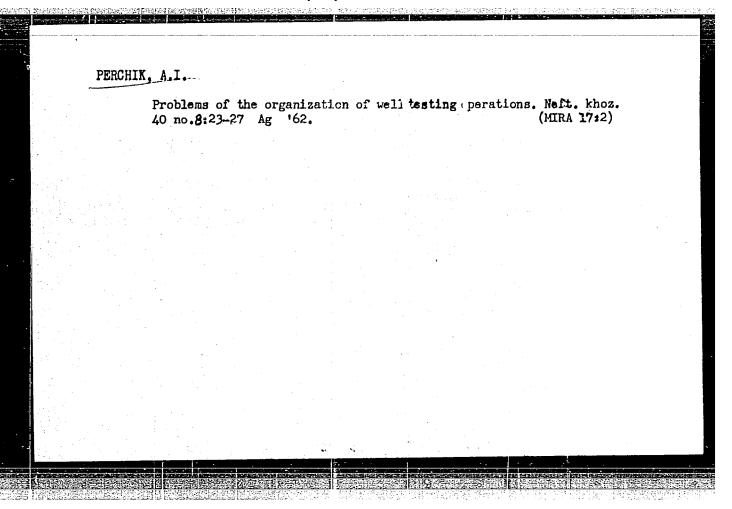




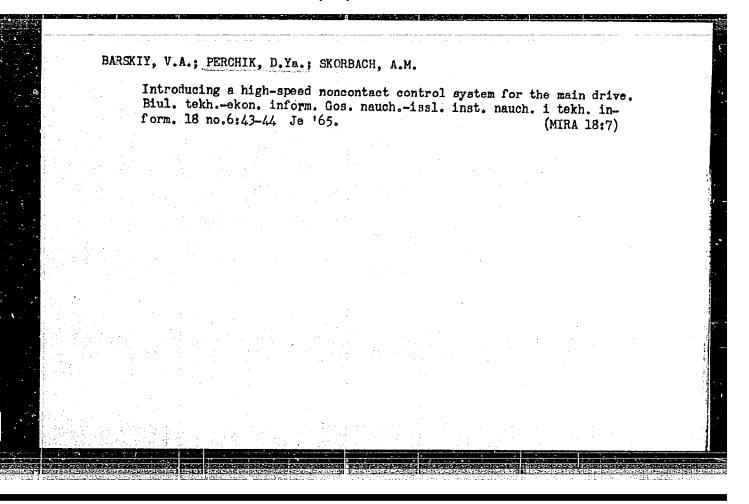


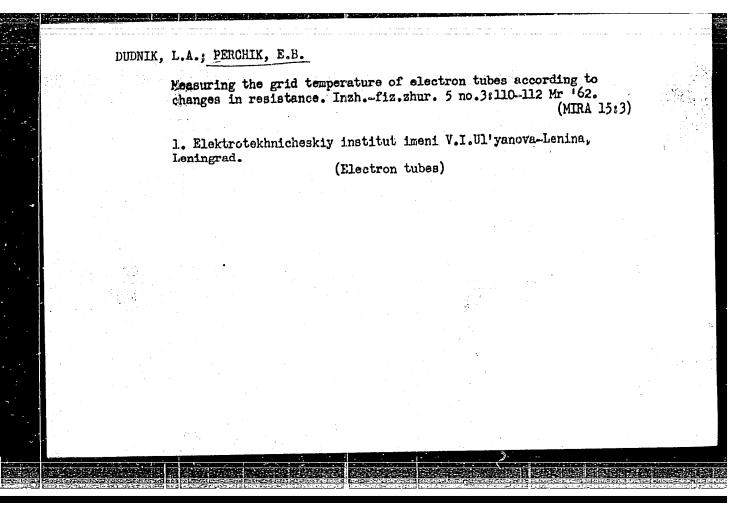






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	l. Glavm Perchik). gorodskoy (Astrakha	2. N	lachal 'r	ik tep	lomekha H (for	niches Spiva	kogo te k).	ekha Asi	traknans	(for koy	
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S/170/62/005/003/010/012 B108/B104

AUTHORS:

Dudnik, L. A., Perchik, E. B.

TITLE:

Measurement of the temperature of electron-tube grid

according to change in resistance

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, v. 5, no. 3, 1962, 110 - 112

TEXT: The temperature of the grids of a 6M1M (6P1P) minitube was determined by measuring their change in resistance by a compensation method. The temperature dependence of the resistivity of the grid materials was studied preliminarily. The error in the determination of the temperature of the grids is about 4%. The present results and those from measurements with miniature thermocouples are in good agreement. The temperature of both grids of 6P1P tubes rises linearly from about 150 to 2500C as the both grids of 6P1P tubes rises linearly from about 150 to 2500C as the filament power (with zero grid and anode potentials) increases from about 2 - 2.3 to 4 w. The respected scientist B. P. Kozyrev is thanked for discussions. There are 2 figures, 1 table, and 3 references; 1 Soviet and 2 non-Soviet. The two references to English-language publications read as follows: Langmuir J. Phys. Rev., 7, 154, 302, 1916; Moor G.,

Card 1/2

### KPIK, P. A.; PERCHIK, F. I.

Oxidation reactions of ferrocyanide by some oxidizing agents as dependent on pH of the medium. Izv. vys. ucheb. zav.; khim. i khim. tekh. 5 no.5:703-708 62.

(MIRA 16:1)

1. Kiyavskiy politekhnicheskiy institut, kafedra analiticheskoy khimii.

(Ferrocyanides) (Oxidation) (Hydrogen-ion concentration)

PERCHIK, F. I.

36741. Kvoprosu opredeleniya svobodnov okisi kal'tsiya v tsementakh. Trudy Kiyevsk. Tekhnol. In-ta silikatov, T. II, 1949, c. 81 - 90. -- Bibliogr: 5 nazv.

SO: Letopis' Zhurnal'nykh Statey, Vol. 50, Moskva, 1949

L 4908-66 EWT(1)/EWA(h)

ACC NR: AP5026308

UR/0144/65/000/008/0937/0941 621,313.821 + 621,373

AUTHOR: Perchik, L.D. (Senior lecturer)

TITLE: Armature reaction in commutator pulse generators

SOURCE: IVUZ. Elektromekhanika no. 8, 1965, 937-941

TOPIC TAGS: pulse generator, armature, electric field, commutator

ABSTRACT: In recent years, the Soviet electrical industries developed and began producing strong current-pulse generators of original design. The generation of pulsed emf's is achieved by the reduction in pole overlap and the distribution of windings in narrow sections under the poles. The presence of higher current harmonics, the nonsinusoidal distribution of fields within the air gap, the complicated configuration of the gap, and the increase of magnetic conductivity of the gap with the increase in order of the harmonic of the magnetization force of the armature all made the determination of the field distribution within the armature extremely complicated. The known method from the theory of ordinary synchronous machines can not take quantitatively into account the reaction of the armature. Consequently, the present author develops a new method for the calculation of these reactions during the evaluation of the fields. Solutions obtained on the "Ural-2" computers for the unipolar-commutator pulse generator are in excellent agreement with data obtained from the analysis of the operation of the generator. Orig. art. has: 14 formulas and 1 figure.

Card 1/2

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ACC NR: AP5026308	
ASSOCIATION: Khar'kovskiy pol	litekhnicheskiy institut (Khar'kov Polytechnic Institute)
SUBMITTED: 16Sep64	ENCL: 00 SUB CODE: EE, EM
NO REF SOV: 004	OTHER: 001
<b>○○</b> Card 2/2	

ROGACHEV, Evan Sergeyevich, dotsent, kand.tekhnicheskikh nauk; PERCHIK, Lev. Davidovich, starshiy prepodavatel!

Mectromotive force and current of a nonpolar commutator-type pulse generator. Izv.vys.ucheb.zav.; elektromekh. 3 no.2:88-105 160.

(MIRA 13:7)

1. Zaveduvishchiy kafedroy elektricheskikh mashlu Khar'kovskogo politekhnicheskogo instituta (for Rogachev). 2. Khar'kovskiy politekhnicheskogo institut (for Perchik).

(Electric generators)

5/144/60/000/02/010/019

E194/E155

Rogachev, I.S., Candidate of Technical Sciences, AUTHORS:

Docent, Head of the Chair; and Perchik, L.D.,

Senior Lecturer

The E.m.f. and Current of a Unipolar-Commutator Impulse TITLE:

Generator

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 2, pp 88-105

ABSTRACT: Possible applications of a unipolar-commutator impulse generator have been described in a previous article by this author published in Elektromekhanika 1958 Nr 9. Various e.m.f. and current impulse wave shapes are required, according to the application. The present article considers the relationships between parameters that govern the shapes of individual impulses and of the whole no-load e.m.f. curve, with different designs of armature winding, and equations are also given that describe the shape of individual current impulses and the whole current curve. The no-load e.m.f. of the armature winding is first considered. As described in the previous article, the armature winding consists of a

Card 1/7

S/144/60/000/02/010/019 E194/E155

The E.m.f. and Current of a Unipolar-Commutator Impulse Generator

number of branches separated from one another by a pole pitch, so that the e.m.f.'s of all conductors of a branch coincide in phase and magnitude. The wave-shape of the e.m.f. induced in each branch corresponds to the field distribution in the air gap. If saturation is neglected, the field distribution between the surfaces of the stator poles and the armature may be regarded as that of a field between two equi-potential surfaces. The armature is considered to be smooth. which has teeth, is treated as two regions: in one the poles are of the same sign, and in the other they are of The simple magnetic circuit when the opposite sign. poles of the teeth are of the same sign is illustrated diagrammatically in Fig 1 and the armature surface induction for this case is given by expression (1). When the poles are of opposite sign, the magnetic circuit is that illustrated diagrammatically in Fig 2, and the corresponding armature surface induction is given by Eq (3). These equations were used to construct the curves of field distribution and no-load e.m.f. for a

Card 2/7

3/144/60/000/02/010/019 B194/B155

The E.m.f. and Current of a Unipolar-Commutator Impulse Generator

unipolar-commutator impulse generator (Fig 3, curve 1). This curve is compared with a curve derived from experimental oscillograms of no-load e.m.f. (Fig 3, curve 2). It will be seen that agreement is satisfactory. As saturation of the pole teeth increases the impulses evidently become wider and the constant component of the e.m.f. increases. This is because more flux entearmature from the lateral surfaces of the teeth. This is because more flux enters the limits of validity of the equations are considered. The subsequent considerations are simplified by assuming that the field distribution is that illustrated in Fig 4, i.e. that the induction under the teeth is of a constant maximum value and that between the teeth a constant minimum value. The field distribution between the poles is assumed to be rectilinear. The field curve may be resolved into two components: the first consists of two trapeziums of opposite sign, each half a pole-pitch long; and the component is a group of rectangles with a base equal to the tooth width, the distance between them being the tooth pitch. With these simplifying assumptions,

Card 3/7

S/144/60/000/02/010/019 E194/E2.55

The E.m.f. and Current of a Unipolar-Commutator Impulse Generator the armature e.m.f. wave-shape is considered for various interconnections of the branches of the armature winding and for various ratios of the number of stator to The considerations relate to a armature teeth. generator with one commutator when all branches of the armature winding are connected in series. It is of practical interest to consider the influence of the parameters of the magnetic system on the e.m.f. waveshape. To determine the latter for the whole winding it suffices to consider the e.m.f. induced in conductors located in a group of armature slots corresponding to one pair of poles. Equations (10)-(13) are given for determination of the no-load e.m.f. wave-shape for various numbers of parallel branches of the winding and of slots. Maximum and minimum values of the intervals between e.m.f. pulses are indicated by Eqs (15) and (16). A simplified resultant e.m.f. curve for a particular machine is drawn in Fig 5. The current wave-shape is then considered. It is difficult to determine in linear circuits supplied by impulse or non-sinusoidal voltage. The method of resolution into a Fourier series is not suitable.

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The E.m.f. and Current of a Unipolar-Commutator Impulse Generator When the e.m.f. wave-shape can be simply expressed analytically, operator calculus methods are applicable, particularly the method of finite conversion. It was found possible to use this method to obtain expressions for the currents over individual periods of time for the particular curve of the e.m.f. of all armature winding branches connected in series. As all the circuit elements are linear the armature winding current may be obtained as the sum of the individual currents set up by the e.m.f. in each branch. The currents are identical in wave shape but displaced relative to one another by an armature tooth pitch. To simplify the expressions for the current curve, the e.m.f. function is considered as a series of rectangular impulses, as shown in Fig 5a. Certain simplifying assumptions that are made in drawing up the equivalent circuit are described, and the equivalent circuit corresponding to a purely resistive load is given in Fig 6. Eqs (19) are then derived for the current in any time interval. Next the main current curves are found, by summating currents due to the

Card 5/7

S/144/60/000/02/010/019 B194/B155

The E.m.f. and Current of a Unipolar-Commutator Impulse Generator e.m.f.'s of individual branches of the armature windings. The e.m.f. curve for one branch of the armature winding is given in Fig 7, and current values at the start of the first impulse and the end of the last of the group are then determined. Equations are thereby derived for the current curve in the whole armature winding. A number of equations are given because it is not possible to write a single simple expression for the current curve in all It is of particular the various cases considered. interest to determine the initial and final currents after the last impulse of the group, because the last exponential decrement governs the process of commutation of the generator. In considering this tail-end waveshape it is possible to lump together the various cases of armature current wave-shape that have been considered, and to unite them into a single expression. Eq (32) is then derived for the relative value of the impulse current during the interval of commutation. Further equations bear on the reliability of commutation when the impulse frequency is 1000 per second or more, and recommendations

Card 6/7

SOV/144-58-9-4/18

Rogachev I.S., Candidate of Technical Sciences, Docent, and Perchik, L. D., Senior Lecturer Unipolar-commutator Pulse Generator (Unipolyarno-AUTHORS:

TITLE: kommutatornyy generator impul'sov)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 9, pp 21-28 (USSR)

ABSTRACT: Electro-erosive machining of metal can be classified

into the following categories: electric spark machining, anodo-mechanical machining, electric contact machining and machining by means of electric pulses. The last of these is based on using arc impulses of long and medium duration and low intensity. Compared to electric spark machining, the productivity is 5 to 8 times higher in the case of machining by electric pulses. Furthermore, the wear of the tool electrode is less and so is the power consumption. Due to the various drawbacks of conventional sources of current supply for this method of machining, much effort has been spent in developing generators specifically for this purpose. As a result of the investigations carried out between 1951 and 1958

at the Chair for Electric Machinery of the Khar'kov

Card 1/6 Polytechnical Institute, the OKB MSS and ENIMS, rotary

507/144-58-9-4/18

generators of several types were evolved: 1) generators which produce directly unipolar impulses (Ref 1); 2) generators producing impulses of alternating polarity which are rectified directly in the machine; 3) machines in which the generation of groups of impulses of alternating polarity is synthesized with subsequent rectification (Ref 2). In this paper the principle of operation is described and also the test results of a machine of the latter type, i.e. the "unipolar-commutator generator of impulses" (UCGI), since so far no information has been published on such machines. It was observed experimentally that the best surface quality is obtained at a relatively high frequency and intensity with low energies of the individual impulses and this is attributed to the fact that the quantity of metal ejected during each impulse is low; in most cases this also brings about an improvement in the evacuation of the dispersed particles. These considerations led to

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Card 2/6

SOV/144-58-9-4/18

the development of a new type of generator the UCGI. which is a relatively small source of supply of impulses of elevated frequency for electro-erosive machining. This special generator of a modulated frequency is based on an original combination of the types (1) and (2) generators. The generation of unipolar impulses in one group takes place in a similar manner as it does in the machine which generates directly unipolar impulses, whilst the rectification of the groups of impulses of alternating polarity into unipolar impulses is effected in the machine itself by means of a commutator in the same way as it is in the type (2) generator. The impulse character of the generated e.m.f. is achieved by producing an appropriate shape of the curve of the field by changing the magnetic conductivity of the air gap along the circumference of the armature and using a non-uniformly distributed armature winding, An increase in the frequency of the generated impulses is achieved by increasing the number of poles by having a tooth-like surface of the individual poles.

Card 3/6 Therefore, in the individual conductors of the armature

SOV/144-58-9-4/18

winding, with a space of one pole between them, e.m.f. impulses of a single polarity will be generated during rotation of the armature. The summation of the individual e.m.f. under the various poles is effected by inter-connecting the windings and, as a result of that, it is not necessary to sum the individual e.m.f. by increasing the slip rings which would lead to an increase in the mechanical losses and an increased length of the machine in the axial direction. The principle of operation of the machine is explained by the sketch, Fig 1, which shows the development onto a plane of the stator 1 and of one of the possible alternatives of the armature winding for a 4-pole machine. The internal surface of the stator has two types of slots: slots 2 which contain the excitation windings 3 and narrow slots without any windings 4. As a result of the latter, a larger number of impulses are obtained. It Card 4/6 is also possible to utilize machines with salient poles,

SOV/144-58-9-4/18

the surfaces of which are tooth-shaped. A photo of an experimental prototype of such a machine is shown in Two such experimental machines were Fig 4, p 25. developed and tested at the Khar'kov Polytechnical Institute; they are generating 1200 and 1600 impulses/sec respectively; the average current intensity is about 50 Å, the maximum voltage is about 120 V. In Fig 5 a drawing is given of the stamped sheet of the armature of such a machine for generating 1200 impulses/sec. The oscillograms of the e.m.f., the voltage and the current are reproduced in Figs 7 and 8 and the external characteristic of the machine is graphed in Fig 9. It was found in tests carried out at ENIMS that the use of these generators for feeding machines working on the electro-erosion principle permits carrying out certain operations which are difficult or impossible to carry out when using other current sources, for instance. broaching of thin slots and of holes of diameters of the order of 0.2 mm. Data are given on the rate of electro-erosion machining achieved by using the generator Card 5/6 supplying 1600 impulses/sec. The dimensions of the

Unipolar-commutator Pulse Generator

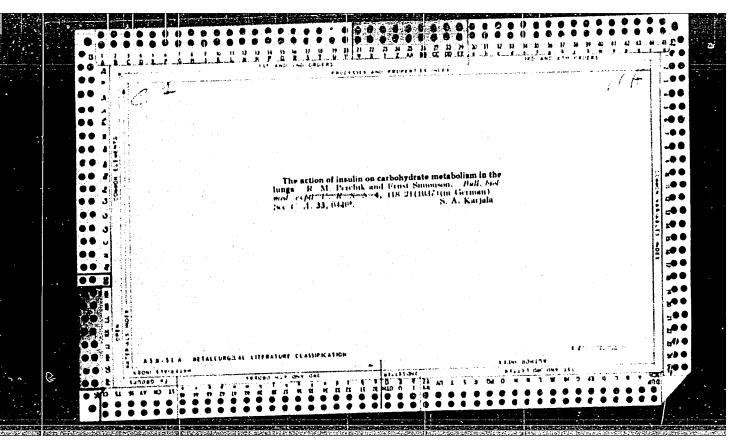
machine can be further reduced by increasing their speed. Such generators may also have other applications. There are 9 figures and 4 Soviet references.

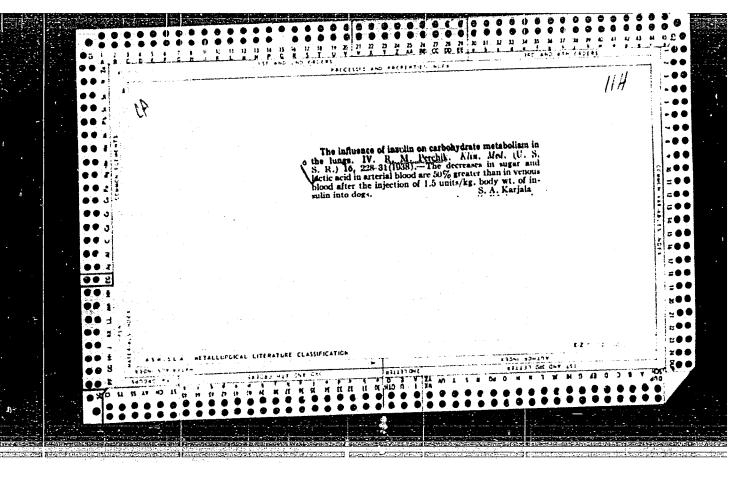
ASSOCIATION: Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnical Institute)

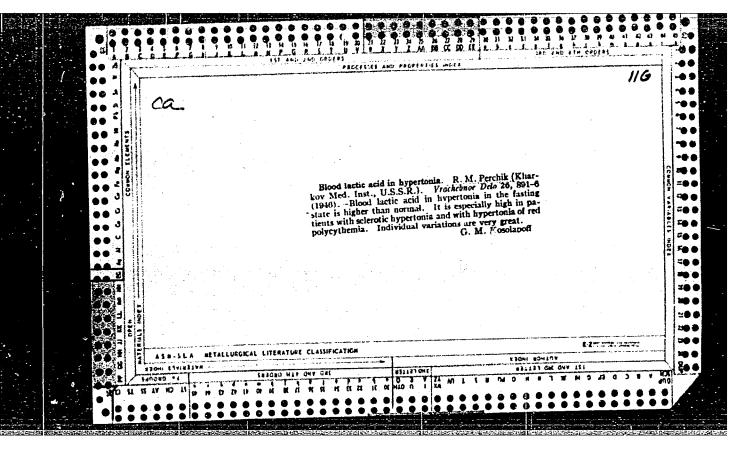
SURMITTED: July 3, 1958

Card 6/6

ROGACHEV, Ivan Sergeyevich, dots., kand.tekhn.nauk; PERCHIK, Lev Davidovich, starshiy prepodavatel 1. Khar'kovskiy politekhnicheskiy institut. (Electric generators)



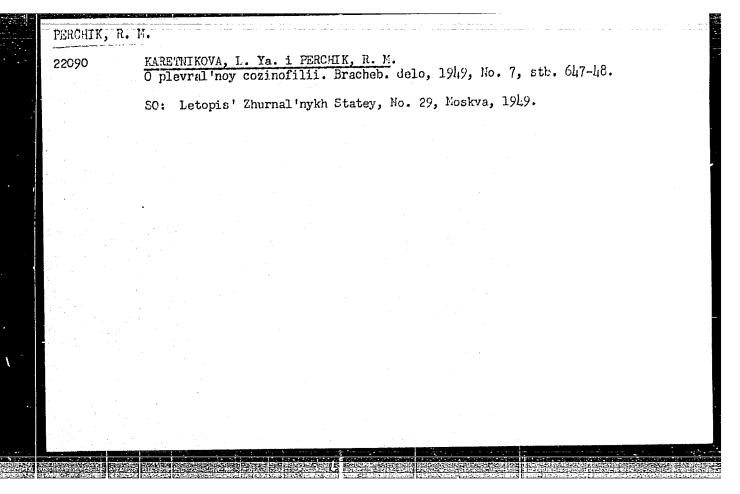


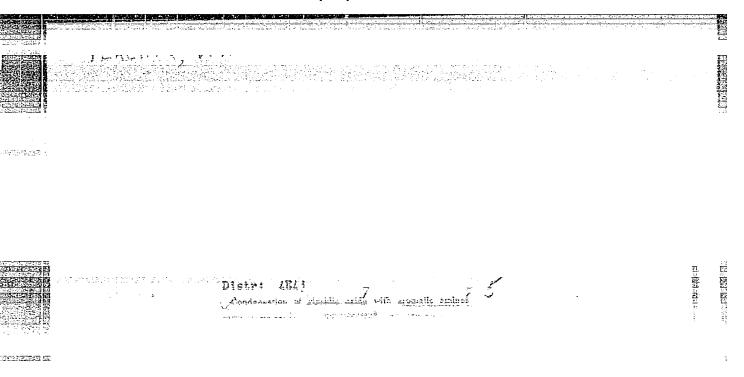


PERCHIK, R. M.

Perchik, R. M. "On the interrelationship between hydrocarbon and chloride exchange in pneumonia and other pathological conditions", Vracheb. delo, 1948, No. 12, paragraphs 1071-74.

SO: U-3042, 11 March 53, (Letopis 'zhurnal 'nykh Statey, No. 10, 1949).





PERCHIK, V.P.; MAZIN, V.S.

Efficiency of the transfer of the management of industrial approach tracks to the main railroads. Zhel. dor. transp. 47 no.3:24-25 Mr 165. (MIRA 18:5)

1. Nachal'nik stantsii Mokraya Pridneprovskoy dorogi (for Perchik). 2. Starshiy inspektor podmyezdnykh putey Zaporozhskogo otdeleniya Pridneprovskoy dorogi (for Mazin).

PERCHIK, V. P.

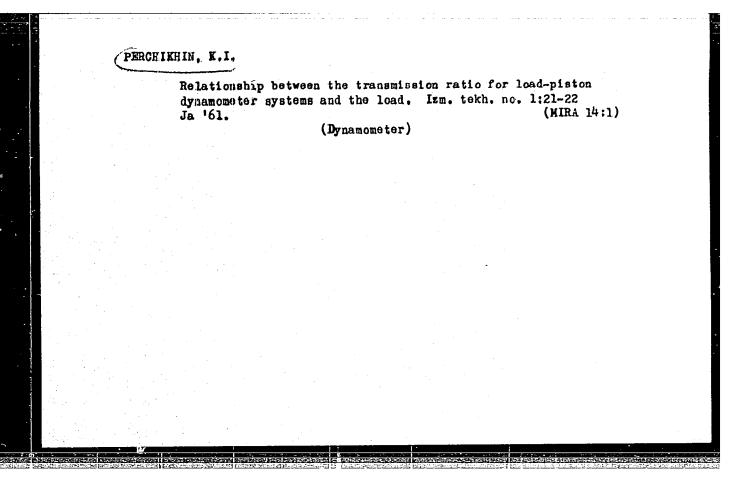
Ponomarenko, A. A. and <u>Perchik, V. P. - "The reaction of phthalic and J-nitrophthalic anyhdrides combined with glycerol," Uchen. zapiski (L'vovsk. gos. un-tim. Franko), Vol. IX, 1948, p. 75-79, (In Ukranian, resume in Russian)</u>

SO: U- 5240, 17, Dec. 53, (Letopis 'Zhurnal 'nykh Statey, No. 25, 1949).

KRASNOV, V.S.; KASHEKOV, L.Ya., kand. tekhn. nauk; NOVIKOV, G.I., kand. tekhn. nauk; MAKAROV, A.P., kand. tekhn. nauk; GALDIN, M.V., inzh.; KOROIEV, V.F., kand. tekhn. nauk; PERCHIKHIN, A.V., inzh.; FADEYEV, N.N., inzh.; ROZIN, M.A., red.; DEYEVA, V.M., tekhn. red.

[Mechanization of production processes on livestock farms]
Mekhanizatsiia proizvodstvennykh protsessov na zhivotnovodcheskikh fermakh, Izd.5., ispr. i dop. Moskva, Sel'khozizdat, 1963. 478 p. (MIRA 17:2)

1. Chlen-korrespondent Vsesoyuznov akademii sel'skokhozyaystvennykh nauk imeni V.I. Lenina (for Krasnov).



ORLOV, I.I., inzhener; PERCHINHIN L.I., inzhener; TER-MERTCHAN, G.S., inzhener.

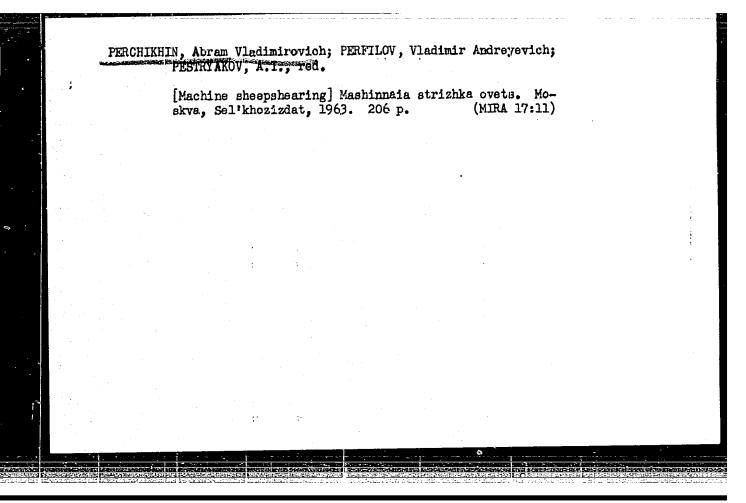
Expedient regulation of peat pump discharge. Torf.prom. 30 no.10:6-9 0 '53. (MERA 6:10)

1. Moskovskiy torfyanoy institut (for Orlov). 2. Institut metrologii (for Perchikhin). 3. TenliTMASh (for Martchan). (Pumping machinery)

PERCHIKHIN, Abram Vladimirovich, inzh.; KRASNOV, V.S.; KASHEKOV, L.Ya., inzh.; NOVIKOV, G.I., kand.tekhn.nauk; MAKAROV, A.P., inzh.; GALDIN, M.V., inzh.; KOROLEV, V.F., kand.tekhn.nauk; FATEYEV, Ye.M., doktor tekhn.nauk; FADEYEV, N.N., inzh.; ROZIN, M.A., red.; GUREVICH, M.M., tekhn.red.

[Mechanization of heavy work on livestock farms] Mekhanizatsiia trudoemkikh rabot na shivotnovodcheskikh fermakh. izd.4., ispr. i dop. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1959. (MIRA 13:10)

1. Chlen-korrespondent Vsesoyuznoy akademii sel'skokhozyaystvennykh nauk imeni V.I.Lenina (for Krasnov). (Stock and stockbreeding) (Farm mechanization)



Shearing machine with a built-in electric motor. Zhivotmovodstvo
21 no.5:42 My '59.

1. Vsesoyusmyy nauchno-iseledovatel'skiy institut elektrifikatsii
sel'skogo khozysystva (VINSKh).

(Sheep shearing)

HREMER, G.I., doktor tekhn.nauk, prof.; GALDIN, M.V., inzh.; DEMIN, A.V., kand.tekhn.nauk; ZYABLOV, V.A., kand.tekhn.nauk; KAPLUNOV, M.M., inzh.; KASHRKOV, L.Ya., inzh.; KOROLEV, V.F., kand.tekhn.nauk; KRASNOV, V.S.; KULIK, M.Ye., kand.tekhn.nauk; MAKAROV, A.P., inzh.; NOVIKOV, G.I., kand.tekhn.nauk; NOSKOV, B.G., inzh.; CLENEV, V.A., kand.vet.nauk; OSTANKOV, V.P., inzh.; PERCHIKHIN, A.Y., inzh.; POKHVALENSKIY, V.P., kand.tekhn.nauk; SERAFINOVICH, L.P., kand. tekhn.nauk; SMIRNOV, V.I., kand.tekhn.nauk; URVACHEV, P.N., kand. tekhn.nauk; FADEYEV, N.B., inzh.; FATEYEV, Ye.M.; KRYUKOV, V.L.; red.; VESKOVA, Ye.I., tekhn.red.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

[Reference book on the mechanization of stock farming] Spravochnaia kniga po mekhanizatsii zhivotnovodstva. Moskva, Gos.izd-vo sel'khoz. lit-ry, 1957. 678 p.

	Hew holding-down and carrying machanisms for measuring instruments. Ism.telh. no.4:19-20 Ap '60. (MIRA 13:8)
	(Measuring instruments)
· .	

